

## **REMARKS**

### ***Summary of Amendments***

1. Claims 1-8 were originally submitted in this case. Claims 9-12 were added in an amendment dated June 19, 2006. Claims 10-12 have been canceled in this paper. Claim 13 has been added. Claim 1 has been amended, as described in more detail below, to more particularly point out and distinctly claim the subject matter of the instant invention. Claims 1-10 and 13 remain pending.

### ***Claim Rejections – 35 U.S.C. § 112***

2. Claims 1-12 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Examiner states:

[T]he new limitations of  $(b - a)$  being greater than  $0 \mu\text{m}$  and less than  $35 \text{ mm}$  in amended claim 1, being in the range from  $50 \mu\text{m}$  to  $35 \text{ mm}$  in claim 2, being in the range from  $10 \text{ mm}$  to  $30 \text{ mm}$  in claim 9, and the ratio of  $b/a$  in claims 10-12 is new matter. The specification does not say that  $(b - a)$  could not be 0, but only more than 0. Similarly there is no upper limit on  $(b - a)$  and there is no mention of the ratios of  $b/a$  in the specification.

3. Applicants have canceled previously presented claims 10-12, without prejudice, in this paper.
4. Applicants respectfully traverse the Examiner's § 112 rejections of claims 1, 2, and 9. MPEP § 2163.04 states that the burden is initially on the Examiner to present a preponderance of evidence showing why a person skilled in the art would not recognize a description of the invention as defined in the claims. Applicants respectfully submit that the Examiner has failed to make this showing. Applicants further submit that the Examiner's statement that there is no upper limit on  $(b - a)$  recognized in the specification is incorrect. With regard to an upper limit on  $(b - a)$ , Table I clearly shows that increasing  $(b - a)$  beyond about  $35 \text{ mm}$  results in a dramatic increase (from 0.28% at  $35 \text{ mm}$  to 1.4% at  $40 \text{ mm}$ ) in the temperature uniformity (isothermal rating). Paragraph [0005] of the original specification teaches that a temperature uniformity of less than 1.0% is a necessity (clearly disqualifying  $40 \text{ mm}$ ). Thus, the combination of Table I and paragraph [0005] clearly teach a  $(b - a)$  upper limit of about  $35 \text{ mm}$ .
5. Moreover, paragraph [0006] of the original specification teaches that it is advantageous to further reduce the isothermal rating (temperature distribution)

down to  $\pm 0.3\%$  or even down to  $\pm 0.1\%$ . Table I also clearly shows that a minimum isothermal rating may be achieved at  $(b - a)$  equal to 30 mm. The extensive data in Table I further clearly show that the isothermal rating can be selected to be less than certain predetermined thresholds based on certain  $(b - a)$  ranges. For example, in order to achieve an isothermal rating of within  $\pm 0.4\%$ , Table I clearly teaches that the wafer holder must be fabricated such that  $(b - a)$  is in the range from 50  $\mu\text{m}$  to 35 mm (previously presented claim 2). To achieve an isothermal rating of within  $\pm 0.3\%$ , Table I clearly teaches that  $(b - a)$  must be in the range from 1 mm to 35 mm (new claim 13). To achieve an isothermal rating of  $\pm 0.2\%$ , Table I clearly teaches that  $(b - a)$  must be in the range from 10 mm to 30 mm (previously presented claim 9). Paragraphs [0005] and [0006] provide clear motivation for reducing the temperature distribution (improving the "isothermal rating"/temperature uniformity). Table I clearly supports the  $(b - a)$  ranges recited in claims 1, 2, 9, and 13, listing specific  $(b - a)$  values and experimentally determined isothermal ratings for those  $(b - a)$  values. Thus, Table I clearly demonstrates that at the time of filing the present application, Applicants had possession of the invention and its advantages as recited in claims 1, 2, 9, and 13. Accordingly, it is respectfully submitted that the  $\S$  112 rejection of claims 1-10 and 13 has been overcome.

### ***Claim Rejections - 35 U.S.C. $\S$ 102***

6. Claims 1-8 stand rejected under 35 U.S.C.  $\S$  102(b) as being anticipated by both U.S. Pat. No. 5,688,331 to Aruga et al., and U.S. Pat. No. 5,800,618 to Niori et al. Claims 1-12 also stand rejected under 35 U.S.C.  $\S$  102(e) as being anticipated by U.S. Pat. No. 7,033,444 to Komino et al. Claims 1-8 and 10-11 stand further rejected under 35 U.S.C.  $\S$  102(e) as being anticipated by U.S. Pat. Pub. No. 2002/0158060 to Uchiyama et al.
7. Applicants respectfully traverse this rejection to the extent that it is pertinent to independent claim 1, as amended. Claim 1 has been amended to recite: "a wafer holder...being trapezoidal in cross-section... wherein the wafer holder is dimensioned to increase in diameter continuously from diameter  $a$  to diameter  $b$ ." This amendment is supported by original Fig. 1, such that no new matter has been added and no new search should be required.
8. Applicants respectfully submit that claim 1, as amended, now distinguishes patentably over the prior art of record. In particular, none of the prior art references of record teach, or even suggest, a wafer holder being trapezoidal in cross section and having a relative relationship between the diameter of the wafer carrying face (diameter  $a$  in claim 1) and the diameter of the side opposite the wafer carrying face (diameter  $b$  in claim 1). Thus, none of the prior art references cited in the Examiner's  $\S$  102 rejections can anticipate amended

claim 1. Accordingly, Applicants respectfully submit that the § 102 rejections of independent claim 1 have been overcome.

9. Applicant further notes that the original specification (in paragraph [0021]) teaches that it is advantageous to lessen the radiant lateral surface area (the surface area of the side face of the wafer holder) to further improve the temperature uniformity. This is because there is significant heat loss (radiation) out of the wafer holder at the lateral surface. The trapezoidal configuration shown on Fig. 1 is therefore preferred, advantageously possessing a lower lateral surface area for a given ( $b - a$ ) value than other wafer holder configurations. Stated another way, the configuration shown on Fig. 1 is advantageous as compared to that shown on Fig. 4 or Fig. 5, since the former has a lower lateral surface area for a preselected ( $b - a$ ). For these reasons as well, Applicants respectfully submit that the § 102 rejections of independent claim 1 have been overcome.
10. Applicants further submits that independent claim 1, as amended, is non-obvious in view of the prior art of record. None of the prior art references cited by the Examiner teach or suggest the relationship, as disclosed in the instant application, between the cross-sectional shape, and the relative diameters of the front and back surfaces, of the wafer holder, and the wafer holder's temperature uniformity.
11. It is therefore courteously urged that independent claim 1, as amended, should be held allowable for the reasons set forth above in Paragraphs 7-10 of this paper. It follows that dependent claims 2-9 must also be allowable, since these dependent claims carry with them all the elements of independent claim 1, to which they ultimately refer.
12. Applicants present new claim 13 for consideration. Applicants respectfully submit that new claim 13 is allowable over the prior art of record for the same reasons as claim 1 is, as described above in Paragraphs 7-10. Applicants also submit that new claim 13 is supported by the original specification, as described above in Paragraphs 4 and 5 of this paper; no new matter has been entered.

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Accordingly, Applicants courteously urge that this application is in condition for allowance. Reconsideration and withdrawal of the rejections is requested. Favorable action by the Examiner at an early date is solicited.

Respectfully submitted,

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